



Modern Digital Technologies and Telecommunications Mechanisms in the Implementation of Socio-Economic Policy at the Local and Regional Level

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Abstract. The current level of management of the functioning and development of economic processes in Russian regions is characterized by the predominance of analog methodology in the collection, processing and issuance of important information and products that largely determine the relevance, direction and effectiveness of the implementation of functions and mechanisms of state regional management. The purpose of the work is to modernize the organizational and economic support of the regional economy management processes based on digital technologies. The system of scientific research methods that provided the author's scientific results was formed on the basis of traditional and innovative methodological developments that provide the possibility of combining analog and digital assessments of the functioning of regional economic systems, applying qualitative and quantitative research procedures for the formation and transformation of research information arrays, developing promising directions for the introduction of digital telecommunications technologies as part of the functions and mechanisms for managing the economy of modern regions. Results: characteristics of the key features of the modern region as a subject of the digital economy, the specifics of electronic document management as the basis for rationalization of process management in the digital economy of the region, the organization of electronic document management on a regional scale based on the digital information node "Bank-business entity" and modern telecommunications technologies, localized banking structures as nodes of the regional digital infrastructure: resources, goals, functions, results, architecture and information and management flows of the digital node "Bank – economic entity" in the regional economic management system. Conclusions: the conclusion is made about the possibility and need for a qualitative increase in the scale and effectiveness of the use of digital telecommunications technologies in the implementation of the function of state management of the economy of regions, which will dramatically increase the effectiveness of its implementation.

Keywords: Telecommunications · Management · Socio-economic policy · Information resources · Regional economic potential · Digital services

1 Introduction

The global trend of digitalization of economic activity, which has proved its effectiveness in terms of transparency, predictability, security and manageability of economic processes, has not affected the regional level of economic management in the Russian Federation in any way, although the available examples of corporate information systems and services on a national scale clearly confirm the need for rapid mass implementation of digital technologies in the relevant functions, procedures and mechanisms.

It is the digital format of mechanisms and forms of interaction at all levels and branches of local, regional, sub-Federal, and national levels that is the basis for promising effective, systematic and integrated interaction of all economic entities in the region, as well as structures and institutions of the regional community that have their own, often unused, potential to accelerate regional economic processes. However, the real “digital revolution” of a regional scale in the Russian Federation is actually in a state of scientific search and fragmentary initiatives of individual territories, although it can be unified, scaled and integrated into a single digital standard for implementing the state function of managing modern Russian regions [5, 10].

The existing theoretical approaches to implementing the technological foundations of the “digital revolution” at the regional management level are as follows [1–3, 6]:

- new opportunities in the organization of regional socio-economic processes and management associated with quality growth implementation of functional and systematic digital technologies mean in the short and medium term a major breakthrough in the implementation of state management functions to the regional economy associated with a sharp increase in the availability of factual information on the status and activities of subjects and objects of economic management, speed of collection, verification, scale accumulation and primary processing in real-time;
- the best regional practices for implementing modern digital technologies have a significant potential for scaling and can be widely applied in the management of modern Russian regions at the regional, macroregion, and Federal district levels;
- for the applied implementation of the “regional” digital revolution and the implementation of the existing fundamental groundwork in specific management technologies, functions and mechanisms, an up-to-date digital infrastructure is needed, adapted to the specifics and content of the processes of regional socio-economic management and providing a real increase in its functionality, quality and efficiency.

2 Method of Research

The author’s approach to the modernization of organizational and economic support of regional economic management processes based on digital technologies includes the following key innovations [15, 18, 21, 23]:

- characteristics of the region as a promising subject of the digital economy;
- specifics of electronic document management as the basis for rationalization of process management in the digital economy of the region;
- features of the organization of electronic document flow on a regional scale based on the digital information node “Bank-business entity»;
- main possibilities of using localized banking structures as nodes of regional digital infrastructure;
- architecture and information and management flows of the digital node “Bank-business entity” in the regional economic management system.

The characteristics of the key opportunities for converting the economy of a particular region to a digital format and the main directions for using digital technologies in regional management are as follows. We believe that the main directions of implementing digital telecommunications technologies in the region’s economic management system are [4, 7, 12]:

- creation of systems for objective monitoring of the state and activity of all economic entities operating in the region (both endogenous residents and representatives of exogenous structures located within the Regional Economic System (RES));
- organization of digital monitoring of key socio-economic processes, differentiated by us depending on the source of origin and significance for the results of the RES operation;
- tracking the composition, intensity and effectiveness of management impacts at the local (local), regional, sub-Federal, and Federal levels based on a specific set of quantitative indicators that are generated and verified in digital format.

The implementation of these directions is designed to improve the efficiency, reliability and coverage of integrated electronic document management and archiving systems, the formation of regional socio-economic models and quantitative forecasts, and the formation of a factual base of strategic program documents [11, 16].

Characteristics of regional opportunities and features of the organization of system electronic document management as a system for ensuring the functioning and management of the digital economy of the region implies [8, 9, 14]:

- consideration of THE entire population of the territory (residents and mi-grants), economic entities (infrastructure and users differentiated by residency), institutions that ensure the functioning and functionality of the regional economic system (intra-level, inter-level, including from outside the RES), and regional economic management entities (municipal, regional, sub-Federal, Federal);
- inclusion in the tasks of organizing regional electronic document management: creation and updating of digital identification systems for RES subjects, creation of automated systems for recording and objective control of regional economic processes, implementation of automated procedures for primary and secondary processing of economic and managerial information (potential, activity, expectations and plans of RES subjects), logging and optimization of economic and management processes

at the regional level, infrastructure support for the functioning of the digitized segment of RES, aggregation of information resources of different economic actors and integration with existing digital systems (Rosstat, Central Bank, FNS, FMS, etc.) no creating and ensuring the functionality of the functional regional telecommunication systems electronic document management systems advanced information storage, accumulation and processing of the data streaming system of socio-economic information, system knowledge and support scenario forecasts, systems and services joint activities.

The activities of all entities that carry out economic activities within the region, as well as institutions that provide intra- and inter-level interaction of RES entities, can be transferred to an electronic format, taking into account the specifics of their functions and features of the formation and dynamics of the economic base. At the same time, the advantages of regional scale and significance available in the implementation of these efforts can be [13, 17, 19, 20]:

- systematic increase in transparency of regional economic processes based on reliable authorization of the entities involved in them;
- visualization and rapid tracking in digital format of key socio-economic processes at the local and regional levels with a perspective of their integration at the level of the country as a whole;
- double saving of all types of non-productive resources of all RES entities that accompany paper document flow: cost savings of the entities themselves and cost savings associated with the operation of certain types of activities within the RES (archives, notaries, offices, etc.);
- increased reliability of storage, if necessary – recovery of credentials on the basis of a complete transaction history, available when using “block-chain” technologies»;
- increasing openness of data on the actual activities of economic entities in the region, which allows automated generation of integrated accounting, statistical and other types of reports.

We also note that currently there are a significant number of large national (“state Services” resource) and corporate information and digital systems (for example, the information system of Sberbank PJSC, which covers almost the entire population of specific territories), in which, in fact, regional information research and monitoring tasks have already been solved, which requires integration with regional information resources and eliminates the need for duplication of costs for their formation [22].

Solving the problem of digitalization of regional document flow will allow using modern information systems for accumulation, processing and analysis of regional-scale data with the possibility of applying streaming principles for monitoring socio-economic information, implementing high-level economic and mathematical models and forecasts, organizing joint monitoring, research and management activities, including remote collaboration.

The author’s key innovation of the regional electronic document management at the micro level of RES is to validate the feasibility of the transfer of the accounting function and reporting of corporate information resources for information resources of

commercial banks, in fact, serving all regional transactions and their totality, Poreba thus for regional economic and social processes (Fig. 1).

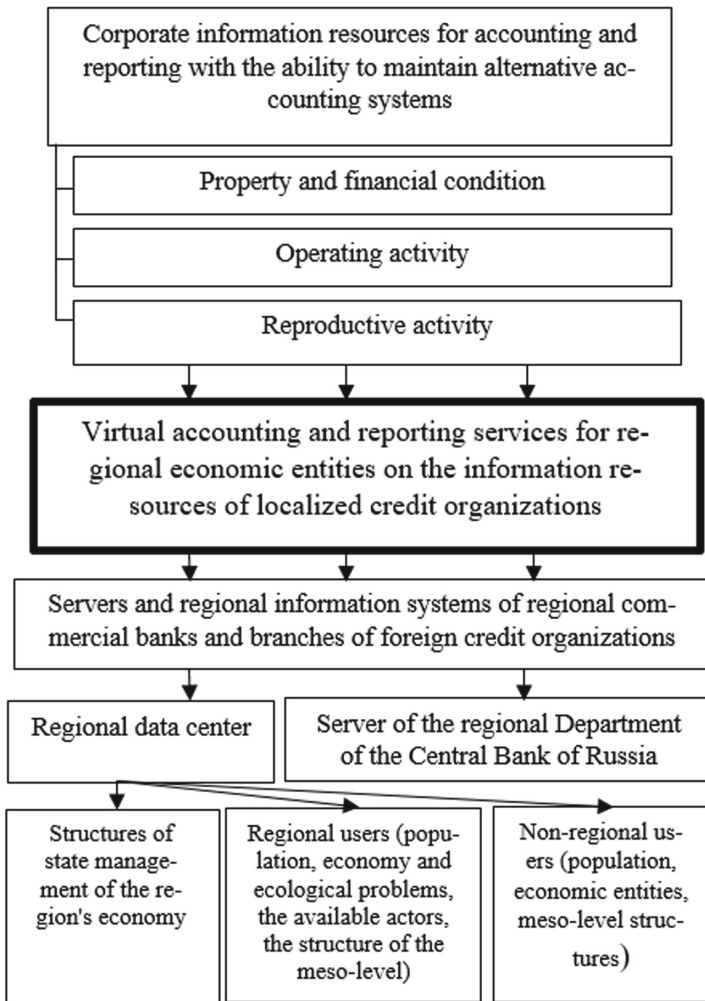


Fig. 1. Organization of electronic document flow on a regional scale based on the digital information node “Bank-business entity” (author’s development)

This idea does not mean the abolition of corporate accounting and reporting, which can be conducted by business entities independently and in a format that meets the goals and objectives of corporate governance [24]. However, transferring the function of synthetic accounting and reporting to the information resources of commercial banks that serve the activities of regional economic entities can provide the following positive effects:

- overcoming the problems of fraud with corporate reporting at the system level;
- implementation of a unified accounting and reporting standard that allows effective integration of local and regional information resources of the appropriate orientation;
- outsourcing the function of synthetic accounting and reporting with a corresponding reduction in the cost and increase in the quality of these procedures (in the reliability and transparency of which are primarily interested in the service itself, economic entities and commercial banks);
- elimination of analog procedures for converting accounting and reporting information into statistical and managerial information necessary for the development and implementation of management decisions at the regional level;
- the ability to implement the necessary number and quality of virtual information procedures required in the activities of functional structures of state (municipal and regional management), regional and non-regional users.

It is also necessary to emphasize the need to create a full-fledged regional information hub of the regional economy – a regional data processing center, whose main function is to integrate information flows of localized credit organizations into a single regional information flow, followed by redirecting information to users of regional and supra-regional directions. Current situation when regional administration is repelled by analog possibilities of territorial structures of Federal state statistics service fundamentally unacceptable, for example, in the formation of the results of the economy of the region (in 2019 in the public domain do not exist relevant assessment 2017 in part of the region’s GRP, significantly reducing the informational efficiency of such existing evidence base).

The features of using the capabilities of localized banking structures as nodes of the regional digital infrastructure are described in Table 1.

In the author’s approach localized banking institutions have the potential of realization of services of a virtual digital service that provides support for electronic document accepted economic entities and their accounting and reporting functions of corporate governance, which provide local and regional integration of information flows and to achieve system growth information efficiency of the regional functions of public administration (Fig. 2).

This visualization shows the linear logic and clear sequence of the regional information process [23]:

- when the subjects and institutions of the RES interact with localized banking structures that can perform the function of nodes of the regional digital infrastructure, economic information flows are generated that characterize the property and financial position and economic activity of the Respondent organizations in an impersonal mode based on cloud information and computing services technologies;
- localized banking structures are able to integrate and issue a unified flow of economic information in the direction of the subject “Regional information flow Manager»;
- the regional information flow Manager integrates the flows of localized banking structures and transmits the generated flows to the regional data center, data Centers of functional management structures, as well as other users;

Table 1. Localized banking structures as nodes of regional digital telecommunications infrastructure: resources, goals, functions, results (author's development)

Characteristics	Description
1. Resources	Banking services as an integrated telecommunications and digital service that provides: - outsourcing and professional implementation of corporate accounting and reporting functions (with the effect of saving resources for its implementation at the corporate level); - the ability to integrate accounting data into local and regional information arrays in the context of territories, types of economic activity, essential characteristics of participants (residents, non-residents) and generate reports on the results of economic activity of RES subjects in real time; – increased security of information exchange based on certified cryptography and authorization technologies – - system cost savings for regional document management and increased information efficiency of the regional public administration function
2. Goals	2.1. Centralization and uniform format of accounting and reporting information as the basis for implementing the regional function of economic management. 2.2. Suppression of non-transparent economic processes and transactions in the region's economy. 2.3. Creating an up-to-date, complete and reliable quantitative information base that provides the ability to develop and record the results of management actions at the local and regional levels
3. Functions	3.1. Providing a single standard for the accounting and reporting function of corporate governance in relation to entities engaged in banking services. 3.2. Formation of statistical models and quantitative forecasts of the financial condition, creditworthiness, solvency and bankruptcy risk of regional mesostructures (strategic groups, technoparks, clusters, etc.). 3.3. Ensuring a single standard for issuing integrated/specialized accounting and reporting information to information systems at a higher level (regional data center and higher). 3.4. Secure electronic document management covering all essential processes and elements of economic activity of regional economic entities
4. Expected results	4.1. Transfer of the region's information system from analog to digital format. 4.2. The possibility of reasonable clarification of analog data (territorial bodies of Rosstat, FTS, FMS, etc.). 4.3. Formation and updating of relevant big Data arrays that provide operational monitoring, verification and operational processing of primary information about the facts of economic life within the RES

- the regional portal of information applications and services becomes an independent level of the regional information infrastructure, which allows users to implement any virtual procedures for accumulation, verification, primary and secondary processing, analysis, evaluation and issuance of statistical and managerial information.

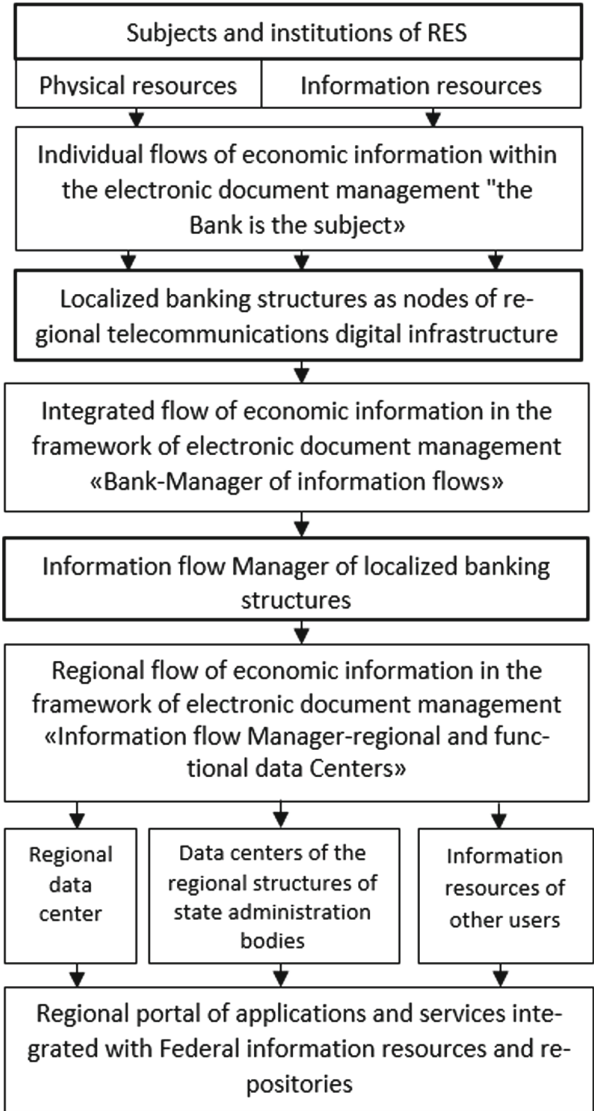


Fig. 2. Architecture and information and management telecommunications flows of the digital node "Bank-business entity" in the regional economic management system (author's development)

We emphasize that the proposed architecture of subjects and information processes necessary for the relevant monitoring of regional socio-economic dynamics does not imply the rejection of the current system of statistical and functional observation implemented by authorized structures of state administration, but is aimed at a qualitatively different level of recording, processing and interpretation of the content of the facts of economic activity within the economy of a particular region.

The implementation of the author's approach to the modernization of organizational and economic support of the regional economy management processes based on digital technologies will ensure the solution of the following national economic tasks at the regional level:

- formation of a relevant information base for regional management based on innovative digital interaction formats in the “Bank – business entity” nodes integrated into the regional information and economic system;
- systematic saving of non-productive costs of all types (temporary, material, monetary, other) that accompany the implementation of the document management function of economic entities, institutions, and state management structures of the region's economy;
- fixing quantitative responses and dynamics of regional socio-economic processes to changes in the factors of the macroeconomic order and institutional innovations;
- modernization of tools for forecasting the stability and development prospects of spatially localized economic systems with the transition to quantitative models of foresight, planning, and targeted regional management.

The implementation of the proposed author's innovation will actually ensure the achievement of the following regional economic results:

- full digitalization of regional economic potential, objective control of its dynamics and problematic aspects of formation, use and reproduction;
- total coverage of regional economic processes, effective counteraction to the regional “shadow” economy;
- application of quantitative tools for monitoring and controlling regional trends in corporate and socio-economic development;
- identification and unambiguous quantitative interpretation of the real effectiveness of municipal/regional management impacts with the possibility of adjustment.

3 Conclusion

Summing up, we emphasize the irreversibility of the processes of digitalization of the economy of modern Russian regions and note the significant economic efficiency associated with the transfer of certain management functions of the corporate sector and certain types of economic activity, as well as the entire function of state management of the region's economy to a digital format based on the use of advanced telecommunications technologies. The applied implementation of the author's innovations will allow a particular region to further strengthen its leadership within the economy of Federal districts and macro-regions in the near and medium term on the basis of qualitative growth of efficiency and reduction of resource intensity of management processes, increase regional competitiveness, and reduce existing barriers that significantly hinder the implementation of regional economic potential.

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